

NONCONFIDENTIAL

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**In the United States Court of Appeals  
for the Federal Circuit**

**WI-LAN USA, INC. AND WI-LAN, INC.,**  
*Plaintiffs-Appellants,*

– v. –

**APPLE INC.,**  
*Defendant-Appellee.*

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No. 2015-1256

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APPEAL FROM THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF CALIFORNIA  
IN NO. 3:13-CV-00798-DMS-BLM,  
JUDGE DANA M. SABRAW

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**NONCONFIDENTIAL ANSWERING BRIEF OF  
DEFENDANT-APPELLEE APPLE INC.**

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Mark C. Scarsi  
Miguel J. Ruiz  
Ashlee N. Lin  
Michael Sheen  
MILBANK TWEED HADLEY &  
McCLOY LLP  
601 South Figueroa Street, 30th Floor  
Los Angeles, CA 90017

Christopher J. Gaspar  
MILBANK TWEED HADLEY &  
McCLOY LLP  
One Chase Manhattan Plaza  
New York, NY 10005

*Attorneys for Defendant-Appellee Apple Inc.*

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## CERTIFICATE OF INTEREST

Counsel for Defendant-Appellee certifies the following:

1. We represent Apple Inc.
2. The name of the real party in interest represented: Apple Inc.
3. Apple Inc. has no parent entity and no publicly held entity owns 10 percent or more of Apple Inc.'s stock.
4. The following law firms and partners or associates appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

MILBANK TWEED HADLEY & MCCLOY LLP

Mark C. Scarsi

Christopher J. Gaspar

Miguel J. Ruiz

Jennifer Miremadi

Ashlee N. Lin

Michael Sheen

STACK FERNANDEZ ANDERSON & HARRIS, P.A.

Lazaro Fernandez, Jr.

Date: May 27, 2015

Respectfully submitted,

By: /s/ Mark C. Scarsi

Mark C. Scarsi

MILBANK TWEED HADLEY & MCCLOY LLP

601 South Figueroa Street

30th Floor

Los Angeles, CA 90017

mscarsi@milbank.com

*Attorney for Defendant-Appellee Apple Inc.*

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**CONFIDENTIAL MATERIAL OMITTED**

Confidential material on pages 14, 23–25, 33, and 41 of this brief regarding proprietary technology has been redacted. Such information was filed under seal pursuant to a Protective Order entered by the United States District Court for the Southern District of California.

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## **I. STATEMENT OF RELATED CASES**

No other appeal involving this civil action was previously before this or any other appellate court.

*Apple Inc. v. Wi-LAN, Inc.*, Southern District of California case number 3:14-cv-2235, and *Wi-LAN, Inc. v. Apple Inc.*, Southern District of California case number 3:14-cv-1507, involve four patents related to U.S. Patent No. 8,315,640, one of the patents at issue in this appeal. On December 18, 2014, the district court ordered those cases consolidated for all purposes, including trial. On March 16, 2015, the district court granted Apple's motion to stay the consolidated cases pending this appeal.



## **II. JURISDICTIONAL STATEMENT**

The district court had jurisdiction over this patent litigation pursuant to 28 U.S.C. §§ 1331 and 1338(a). The district court entered final judgment on January 8, 2015, after granting summary judgment in favor of Apple Inc. on Wi-LAN USA, Inc.'s and Wi-LAN, Inc.'s claims for infringement of U.S. Patent No. 8,311,040 and U.S. Patent No. 8,315,640. (JA1–2.) Wi-LAN appealed on January 12, 2015, pursuant to Fed. R. App. P. 4(a). (JA85–87.) This Court has jurisdiction over an appeal from the district court's final judgment pursuant to 28 U.S.C. § 1295(a).

### III. COUNTER-STATEMENT OF THE ISSUES

1. U.S. Patent No. **8,315,640** (the “’640 Patent”) describes a network involving end users, an intermediary “subscriber unit,” and a base station. Based on arguments the Plaintiffs-Appellants made below, and consistent with the patent specification and prosecution history, the district court construed the term “UL connections” in the ’640 Patent as the connections between the end users and the subscriber unit. Having lost a motion for summary judgment of non-infringement, Plaintiffs-Appellants now propose that the term “UL connections” should be construed as the link between the subscriber unit and the base station. Plaintiffs-Appellants raised their new argument regarding “UL connections” for the first time in their motion for reconsideration of the district court’s order granting summary judgment. Have Plaintiffs-Appellants waived their new argument by failing to raise it before reconsideration?

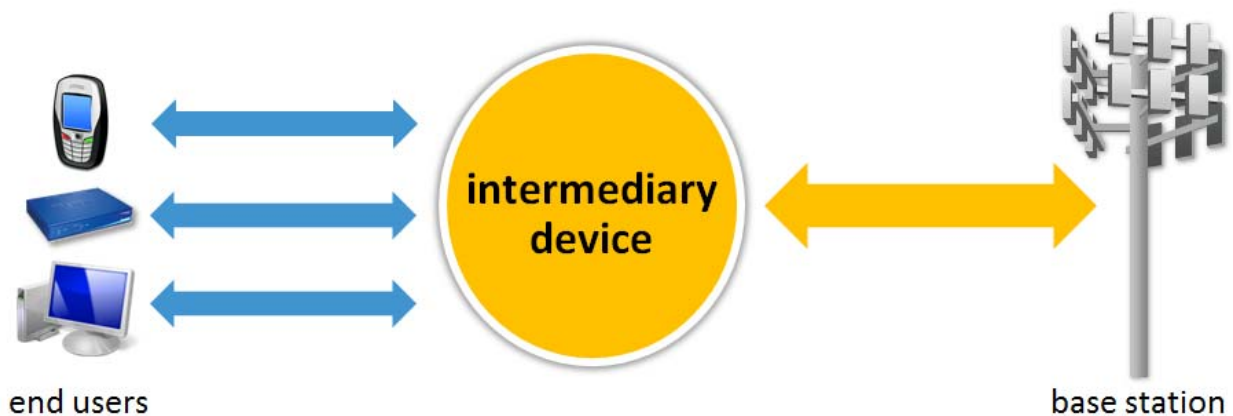
2. Did the district court correctly construe the term “UL connections” in the ’640 Patent as the connections between the end users and the subscriber unit?

3. U.S. Patent No. **8,311,040** (the “’040 Patent”) describes a network involving end users, an intermediary “node,” and a base station. Plaintiffs-Appellants concede that the term “specified connection” as used in the ’040 Patent refers to the connection between an end user and the node. The district court held that the asserted claims of the ’040 Patent require multiple “specified connections.”

Did the district court correctly conclude that the asserted claims of the '040 Patent require multiple “specified connections”?

#### IV. COUNTER-STATEMENT OF THE CASE

Plaintiffs-Appellants Wi-LAN USA, Inc. and Wi-LAN, Inc. (collectively, “Wi-LAN”) filed this case in district court in December 2012, accusing Defendant-Appellee Apple Inc. (“Apple”) of infringing the ’640 Patent and the ’040 Patent (collectively, the “Patents-in-Suit”). (JA2704–09.) The Patents-in-Suit each disclose an intermediary device that manages data transfers between end users (e.g., laptops, tablets, smartphones) and a base station (e.g., cell tower, access point), as illustrated in the diagram below:



(See JA23, JA26, JA29–84.)

The intermediary device—the “subscriber unit” in the ’640 Patent and the “node” in the ’040 Patent—interacts directly with the base station on behalf of multiple end users. (See JA23, JA26, JA29–84, JA2810 at 41:6–21.) As a result there are fewer devices communicating with the base station, enabling the base station to operate more efficiently. (See JA23, JA26, JA29–84, JA2810 at 41:6–21.)

During claim construction, both parties agreed that the district court should construe the term “UL connections” in the ’640 Patent and the term “specified connection” in the ’040 Patent the same way. (JA99, JA111, JA2896, JA2903.) Although they each proposed slightly different constructions for the terms, both parties agreed that the terms described some relationship between the end users and the intermediary device. (JA99, JA112, JA2896, JA2903.) Throughout infringement contentions, discovery, expert reports, and summary judgment, the parties and the district court consistently applied these terms to the connections between the end users and the intermediary device. (*See* Section V.C., *infra*.)

Apple moved for summary judgment of non-infringement on August 25, 2014, pointing out that the asserted claims of each of the Patents-in-Suit require more than one connection between the end users and the intermediary device. (JA145–50, JA151–52.) Wi-LAN’s own expert conceded that Apple’s products contain at most a single connection between the end user and the intermediary device. (JA146–47, JA152–53.) As such, Apple’s products do not infringe. (JA147–50, JA153–56.) The district court agreed and granted summary judgment of non-infringement on all asserted claims. (JA6–15.)

Wi-LAN then moved for reconsideration, arguing an entirely new infringement theory. (JA1072–102.) For the first time, Wi-LAN argued that the “connection” terms (“UL connections” and “specified connection”) referred to the

link between the intermediary device and the base station—not the connections between the end users and the intermediary device. (JA1080–86, JA1090–93.) Wi-LAN argued in the alternative that the asserted claims of the '040 Patent do not require multiple “connections.” (JA1094–1100.) The district court denied Wi-LAN’s motion. (JA3–5.)

On appeal, Wi-LAN continues to argue its new infringement theory and asks this Court to construe the term “UL connections” in the '640 Patent as the link between the intermediary device and the base station. But Wi-LAN waived this new theory by failing to raise it until an adverse summary judgment ruling on its original theory. And, in any event, neither the intrinsic record nor the extrinsic evidence Wi-LAN cites supports this new construction. With respect to the '040 Patent, Wi-LAN asks this Court to reverse the district court’s conclusion that the asserted claims require multiple “specified connections.” But again, the intrinsic evidence only supports the district court’s ruling.

## **V. COUNTER-STATEMENT OF RELEVANT FACTS**

### **A. Asserted Claims on Appeal**

Wi-LAN appeals the district court’s ruling of non-infringement on claims 1 and 2 of the '640 Patent. (Opening Brief for Plaintiffs-Appellants, Wi-LAN USA, Inc., and Wi-LAN, Inc. (“Opening Brief” or “Br.”) at 11.) Independent claim 1 reads:

1. A method for requesting bandwidth on demand in a wireless communication system, wherein the wireless communication system includes a wireless subscriber radio unit, the method comprising:

registering the wireless communication radio unit with a base station in the wireless communication system and establishing communication between the wireless subscriber radio unit and the base station;

transmitting from the wireless subscriber radio unit which is registered with the base station, an explicit message to the base station requesting to be provided an allocation of uplink (UL) bandwidth in which to transmit a bandwidth request;

receiving at the wireless subscriber radio unit the allocation of UL bandwidth in which to transmit a bandwidth request;

transmitting the bandwidth request within the allocation of UL bandwidth, the bandwidth request specifying a requested UL bandwidth allocation; and

receiving an UL bandwidth grant for the wireless subscriber radio unit in response to the bandwidth request;

wherein the wireless subscriber radio unit maintains a plurality of queues, each queue for data pertaining to one or more UL connections with similar QoS and wherein the wireless subscriber radio unit allocates the UL bandwidth grant to the one or more UL connections based on QoS priority.

(JA84 at 23:7–33.) Asserted claim 2 depends from claim 1. (JA84 at 23:34–37.)

Wi-LAN does not appeal the district court’s ruling of non-infringement on independent claim 6 and its dependent claim 7. (Br. at 11.)

Wi-LAN appeals the district court’s ruling of non-infringement on independent claims 1, 14, and 16 and dependent claims 2, 4, 5, and 15 of the ’040 Patent. (Br. at 11.) Independent claim 1 reads:

1. A node for a communications system that packs and fragments variable-length service data units (SDU) for mapping into variable length protocol data units (PDU), each SDU being associated with a specified connection, the node comprising:

a communications processor configured to pack and fragment SDUs associated with a specified connection into a PDU, including

allocate bandwidth for the specified connection, based on the priority of the connection,

establish a length for the PDU based on the bandwidth allocated to the specified connection in a current frame,

pack a first SDU into a payload area of the PDU,

determine whether a second SDU is larger than a remaining payload area of the PDU,

if the second SDU is not larger than the remaining payload area of the PDU, map the second SDU to the remaining payload area of the PDU, and

if the second SDU is larger than the remaining payload area of the PDU, fragment the second SDU into at least two fragments and map the first fragment to the remaining payload area of the PDU, and

include packing sub-headers in the PDU to allow determination of the length of the SDUs and the lengths of the fragments that are mapped to the PDU.

(JA55 at 19:29–53.)

## **B. Background of the Technology**

### **1. *Wireless Networks***

Generally, wireless networks support the transmission and reception of data from end users (e.g., laptops, tablets, smartphones) to base stations (e.g., cell towers, access points) that connect to a larger network (such as the Internet).

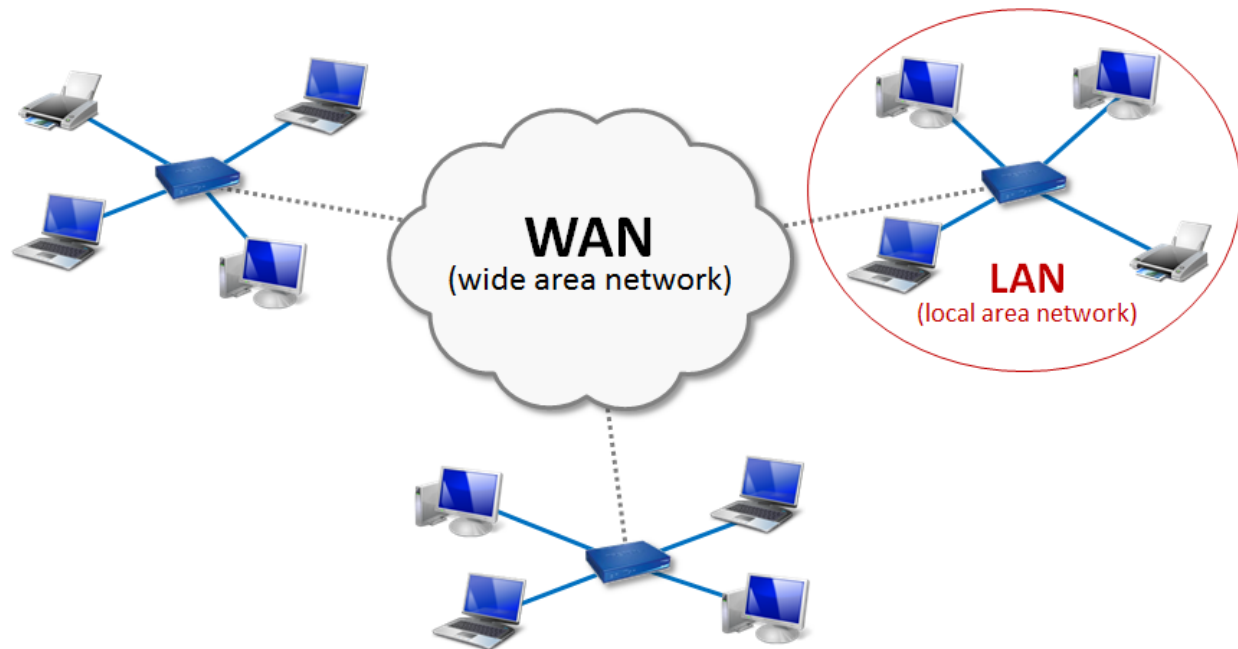


(JA91.) Data is transmitted from one point in the network to another using “bandwidth.”<sup>1</sup> (JA92.)

Colloquially, there are two general types of wireless networks: Local Area Networks (LANs) and Wide Area Networks (WANs). (JA2807 at 38:17–24.) A Local Area Network is a network that interconnects user devices in close proximity to each other. (JA807, JA2807 at 38:17–22.) A home network that connects all of the Wi-Fi devices in the home to a wireless Wi-Fi router is an example of a Local Area Network. (JA2807 at 38:17–22.) A Wide Area Network differs from a Local Area Network in that it can connect devices in a much broader area. In addition, whereas a Local Area Network generally connects only individual devices or users, a Wide Area Network can connect both individual users and smaller networks within its network. (JA2807–08 at 38:24–39:2.) For example, a home Wi-Fi network is a Local Area Network but is also part of a Wide Area Network if the home Wi-Fi router is connected to the Internet (e.g., via a cable modem). (JA2808 at 39:2–6.)

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<sup>1</sup> The district court construed the term “bandwidth” as “data-carrying capacity.” (JA24–25.) That construction is not at issue in this appeal.



(JA2808 at 39:2–6.) Wide Area Networks, therefore, can be more complex than Local Area Networks, can cover a much larger area, and typically include many more devices. (See JA2808 at 39:13–25.)

## 2. *Wi-MAX and LTE Technology*

Wireless networks employ a communication standard to allow all of the devices on the network to communicate with each other. (JA769.) The IEEE 802.11 standard, or “Wi-Fi,” is an example of a communication standard used in wireless home networks. (JA807–08.)

The IEEE 802.16 standard, or “WiMAX,” is another network communication standard. The Institute of Electrical and Electronics Engineers, or IEEE, developed WiMAX in the early 2000s. (Br. at 10, JA811–12.) WiMAX is a connection-oriented network protocol, meaning that two points in the network

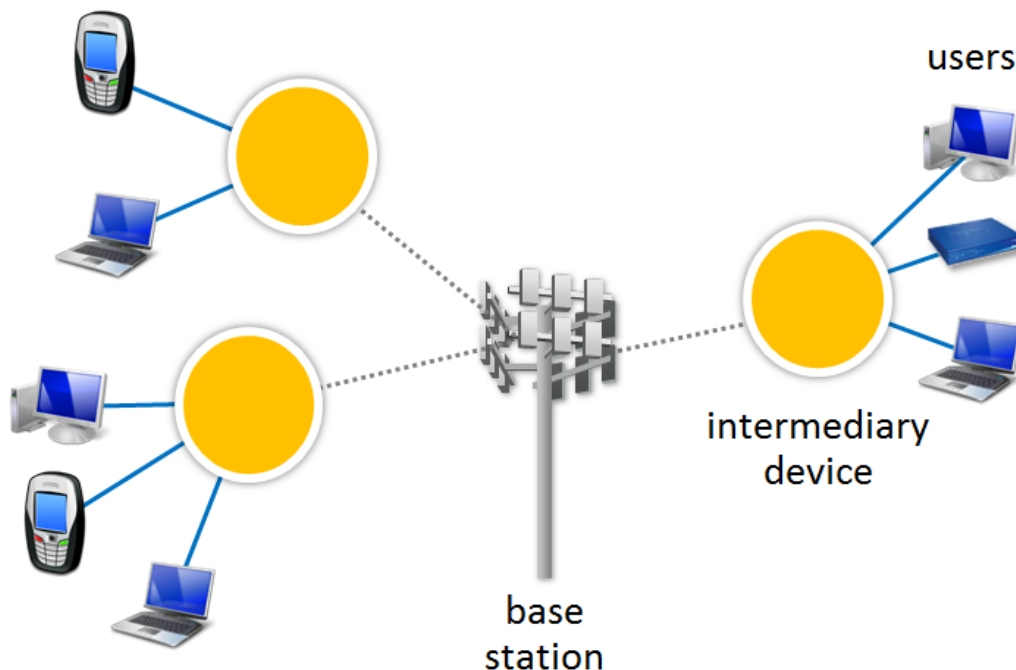
must first establish a dedicated communication channel before data transmission can begin. (JA811–12.) To distinguish between and prioritize these channels when the network is busy, WiMAX uses Quality of Service, or QoS, parameters (such as latency, jitter, throughput, and packet error rate) to schedule data transmissions. (JA811–812.) Because IEEE developed WiMAX for localized metropolitan areas rather than broader coverage areas, many service providers argued that such technology would not be suitable for a nationwide mobile phone network. (JA812.) In the United States, a few service providers briefly considered WiMAX for a mobile phone network because it could theoretically reach data speeds sufficient to classify it as a “4G technology,” but thereafter abandoned it in favor of other cellular technologies. (*See* JA812.)

One such cellular technology that did achieve common use is 3GPP Long-Term Evolution, or “LTE.” Like WiMAX, LTE is considered a “4G technology” because it provides increased data speeds. (JA788.) However, LTE accomplishes data transfer in a fundamentally different manner than WiMAX. LTE was developed by a different organization, the 3rd Generation Partnership Project (3GPP). (JA791.) Unlike WiMAX, LTE features an entirely connectionless network protocol, meaning data can be transmitted without first establishing a dedicated communication channel. (*See* JA811–12.) In a connectionless protocol, data is transmitted using a best-effort approach and without regard to service

requirements or priority. (JA812.) Today, LTE cellular technology is in wide use in the United States.

### 3. *Ensemble Communications and the Patents-in-Suit*

Ensemble Communications, Inc. (“Ensemble”) filed the patent applications that underlie the Patents-in-Suit in 1999 and 2001. (JA29, JA57; *see also* JA2919–20 at 82:14–83:3, JA2923 at 131:7–23.) At that time, Ensemble envisioned a significant increase in the number of users that would need access to base stations in a Wide Area Network. (JA2809 at 40:4–16.) Recognizing the potential burden on a base station servicing a growing number of users, Ensemble began developing intermediary devices to operate between a base station and multiple end users, in an attempt to reduce the number of users interacting directly with the base station. (JA2810 at 41:6–21.)



CONFIDENTIAL MATERIAL OMITTED

Ensemble lobbied to have its technology incorporated into the WiMAX standard. (JA171–72.) [REDACTED]

[REDACTED] (JA2912–14 at 40:25–42:12.) In 2004, Ensemble sold its patent portfolio to Wi-LAN. (JA2915 at 47:2–12.) In 2009 and 2010, Wi-LAN drafted new claims in Ensemble’s pending patent applications, which resulted in the Patents-in-Suit. (See JA29, JA57.) Wi-LAN then asserted the Patents-in-Suit against Apple, alleging infringement by Apple’s iPhone and iPad products compliant with the LTE standard (the “Accused Products”). (JA2704–09.)

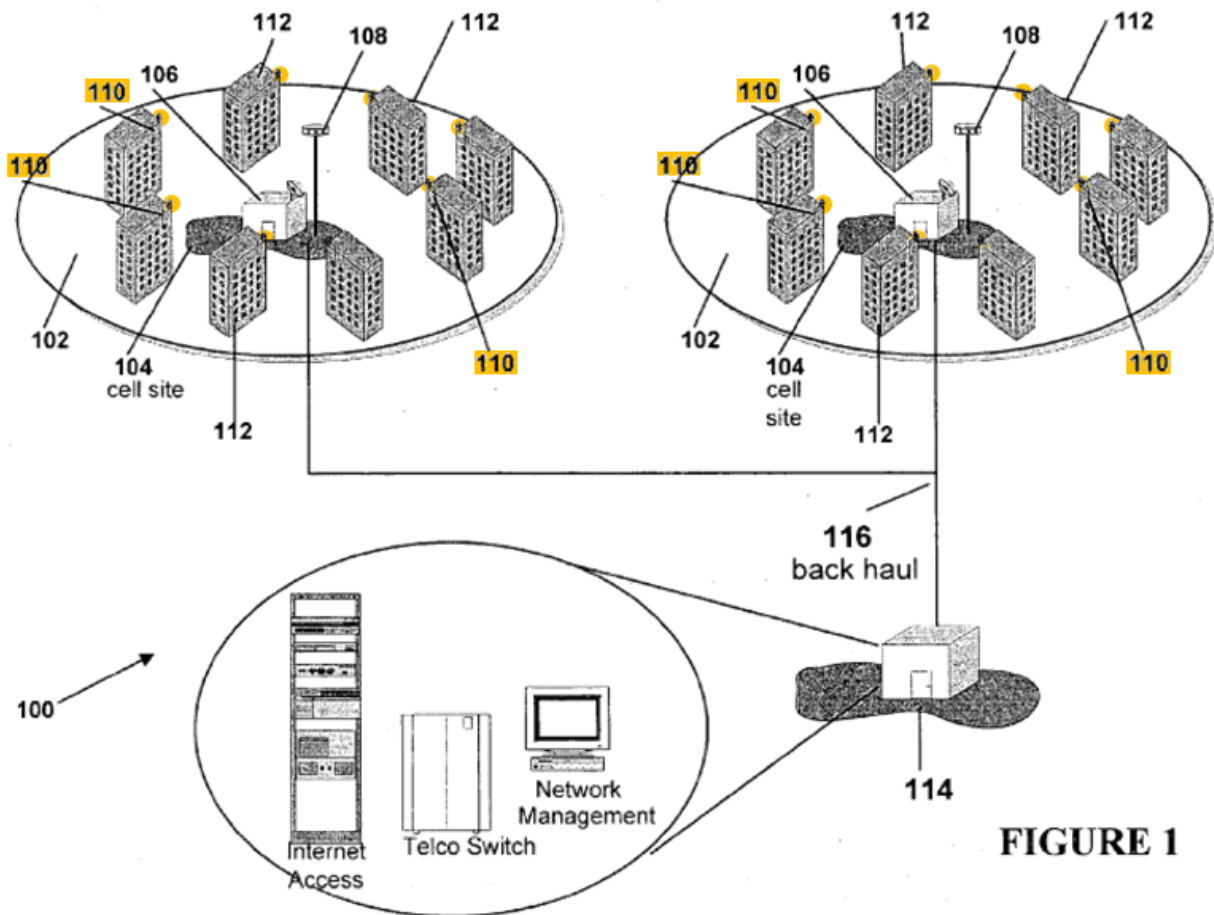
4. *Overview of U.S. Patent No. 8,315,640*

The ’640 Patent attempts to improve a traditional network by using an intermediary device, referred to in the ’640 Patent claims as a “subscriber unit,”<sup>2</sup> to manage communications between end users and a base station. (See JA73 at 1:65–2:13.)

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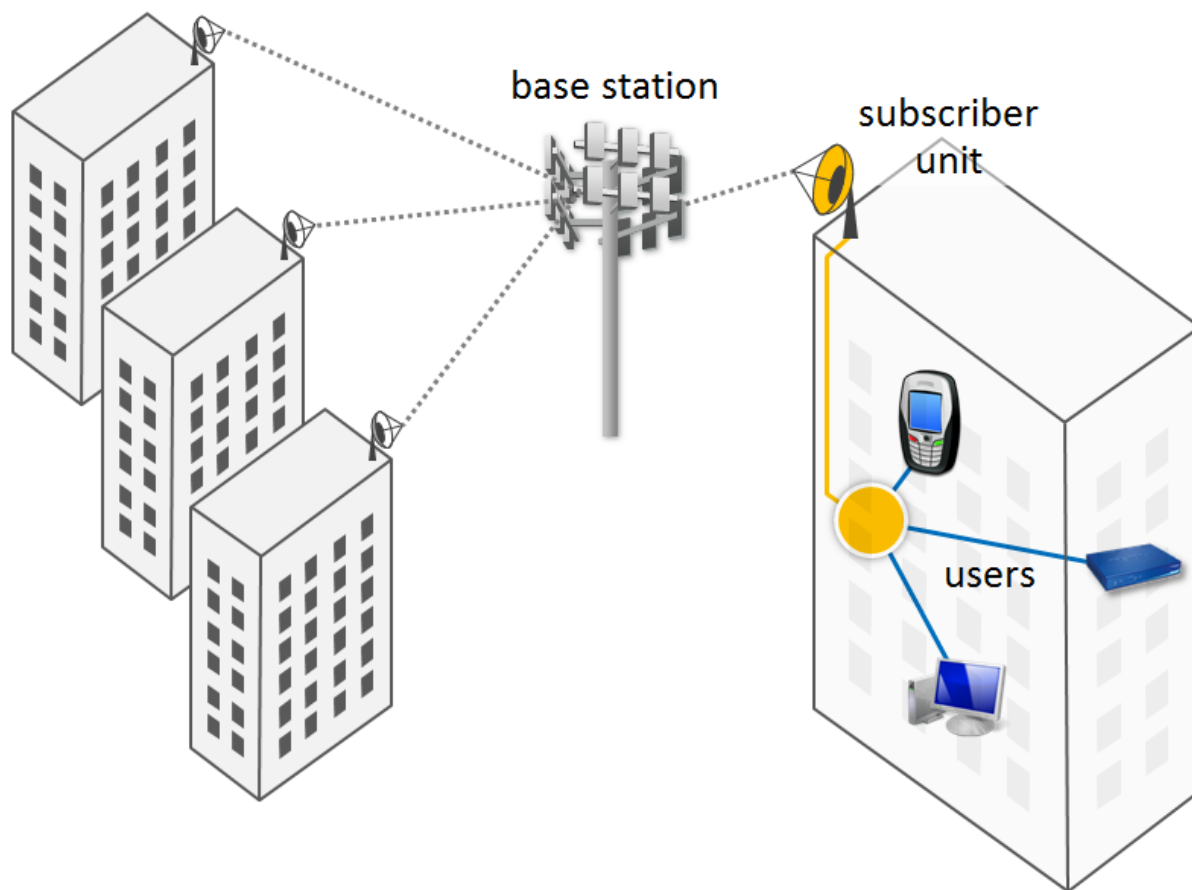
<sup>2</sup> The ’640 Patent specification describes Customer Premises Equipment (“CPEs”), but the claims instead use the term “wireless subscriber radio unit” or “wireless communication radio unit.” The parties do not dispute the district court’s conclusion that a CPE is a type of “wireless subscriber [communication] radio unit.” (See JA26.) For ease of reference, “wireless subscriber radio [communication] unit” is sometimes referred to herein as “subscriber unit” and used interchangeably with CPE.

As disclosed in the '640 Patent, the subscriber unit makes bandwidth requests to the base station on behalf of its users. Once the subscriber unit receives a bandwidth grant from the base station, it allocates the received bandwidth to its users based on their different bandwidth needs. (JA74 at 4:34–41; JA82 at 19:28–44; JA84 at 23:7–24:45.) Figure 1 of the '640 Patent illustrates this system:



(JA60 (highlighted).) As shown in Figure 1 above, the network includes a base station and its antenna (106 and 108) and multiple intermediary CPEs or subscriber units (110) positioned on top of customer sites (112) throughout the coverage area.

(JA73 at 2:3–8.) The end users are located within the customer sites, and communicate directly with the appropriate CPE or subscriber unit:



(See JA73 at 2:8–10.)

The end users of the system interact with the CPE or subscriber unit (110) with different and varying needs, referred to as Quality of Service (“QoS”). (JA73 at 2:10–25.) For example, a user making a voice call will have a higher-priority QoS needs than a user sending an email because data transmission during a voice call must be at a consistent and uninterrupted rate to ensure an undisrupted call.

However, an email communication is not affected by a short delay in transmission. (See JA77 at 10:46–56.)

In the system of the '640 Patent, the subscriber unit requests a bandwidth allocation from the base station on behalf of its users. (JA74 at 3:65–4:33.) Once the subscriber unit receives a bandwidth grant from the base station, it determines which users receive bandwidth immediately and which users must wait for subsequent bandwidth requests. (JA74 at 4:34–41, JA77 at 10:41–59.) By designing the subscriber unit (or CPE) to independently distribute allocated bandwidth to its end users, the '640 Patent attempts to eliminate “the communication overhead that is required by having the base station instruct the CPE how to distribute its allocated bandwidth . . . thus increasing usable system bandwidth.” (JA77 at 10:60–65.)

#### 5. *Overview of U.S. Patent No. 8,311,040*

The '040 Patent likewise discloses an intermediary device in a network similar to that described in the '640 Patent. The intermediary device in the '040 Patent is referred to as a “node.” (JA47 at 4:8–19.) The node reformats and repackages packets of data between end users and the base station for more efficient transmission of that data. (JA46 at 1:16–18, 2:3–19, JA55–56 at 19:29–22:49.) Figure 1 of the '040 Patent illustrates this network:



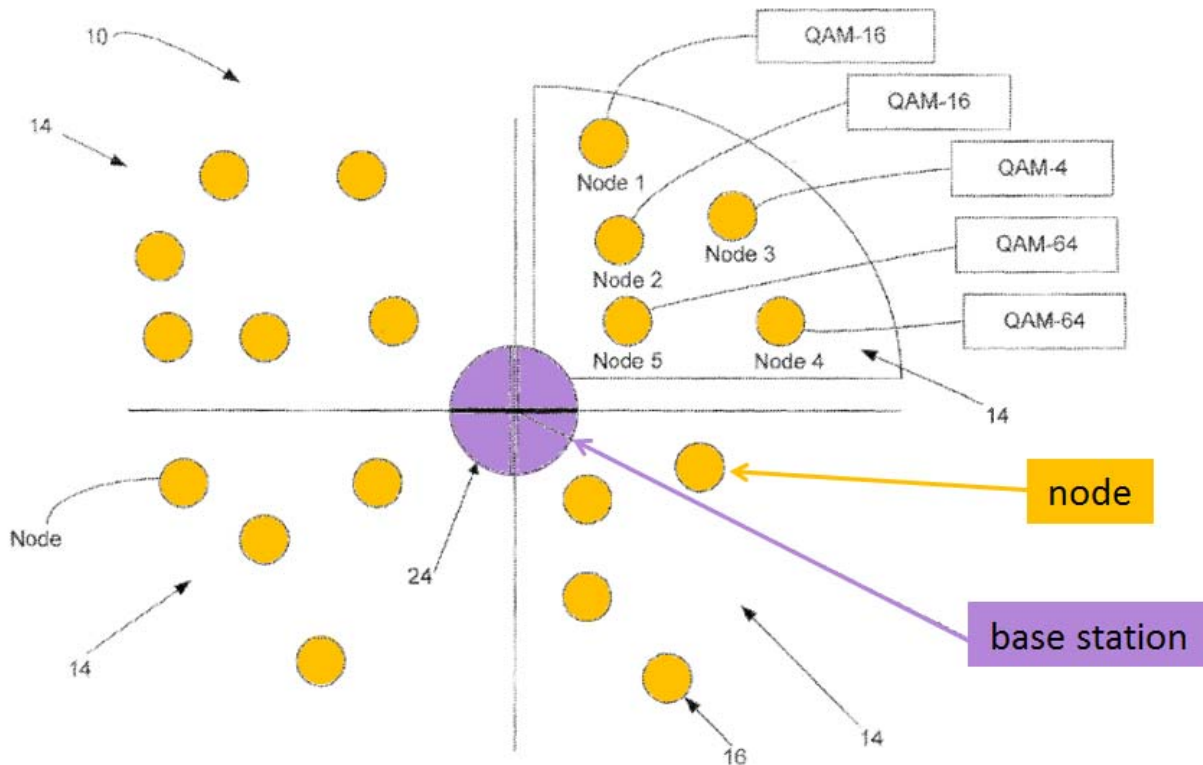


Figure 1

(JA32 (annotated).) As shown in Figure 1, the network features a base station (24) communicating directly with several nodes (16). (JA47 at 4:8–22, 4:44–53.)

Figure 3 of the '040 Patent illustrates a node within the system, servicing multiple end users:

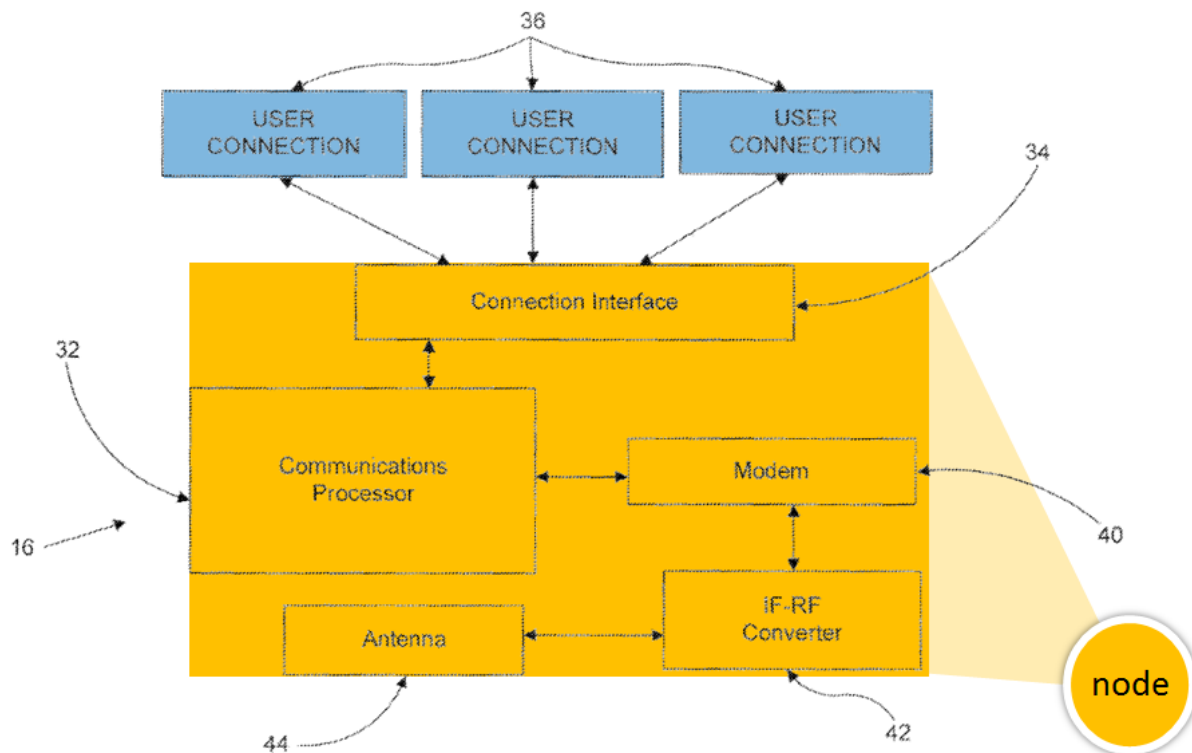
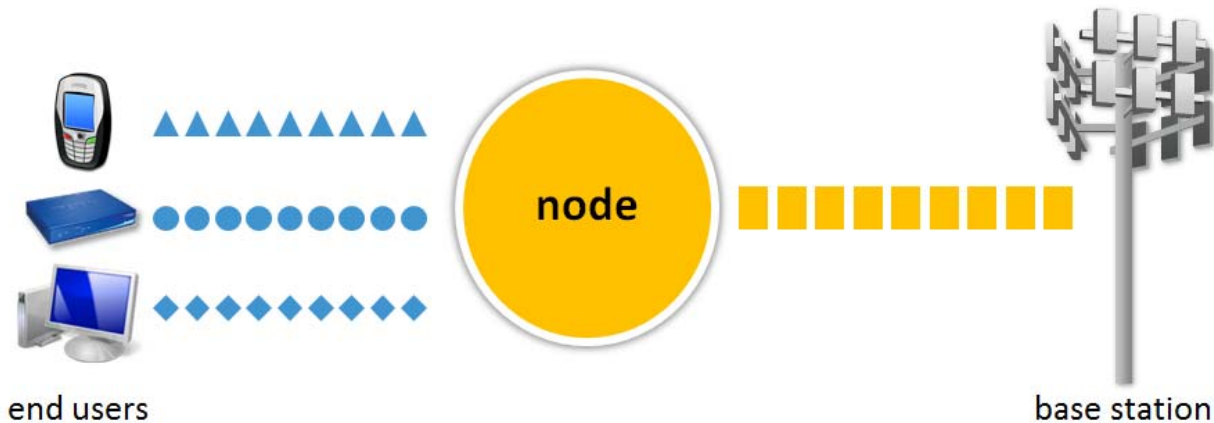


Figure 3

(JA34 (annotated); *see also* JA48 at 6:16–64.)

The intermediary node of the '040 Patent converts data received from the users in one format (service data units or “SDUs”) into a different format to send to the base station (protocol data units or “PDUs”). (JA46 at 1:26–34, 2:3–19.)

According to the '040 Patent, PDUs are more efficient for transmission for two reasons. First, data packets sent from the different end users (SDUs) can arrive in different formats specific to the different users, but PDUs are all in one common format understood by the base station:



(JA46 at 1:39–57, JA48 at 6:44–64, JA5414–15 (“The conversion of different data protocols or SDUs into a common data protocol or PDU is useful, for example, to accomplish wireless local area networking, as it permits multiple devices to use the same centralized access point.”).)

Second, the node allocates available bandwidth to its users based on the priority of the needs of those users. (JA52 at 13:36–44, JA55 at 19:37–38.) Once the node has allocated bandwidth to a particular user, it determines the length of the PDUs for that user data based on what fits most efficiently in the available bandwidth. (JA55–56 at 19:29–22:49.)

### **C. History of the Case**

#### *1. Wi-LAN’s Position Below*

Wi-LAN submitted its opening claim construction brief on September 30, 2013, and responsive claim construction brief on November 13, 2013. (JA88–115, JA2924–2945.) Wi-LAN argued throughout its briefing that the proper construction of the term “UL connections” in the ’640 Patent is “uplink *services*”

that are allocated bandwidth by the intermediary. (JA111–12, JA2942–43.) Wi-LAN argued that the term “specified connection” in the ’040 Patent should be construed the same way. (JA99, JA2932–33.) At the time, Wi-LAN agreed that the terms “UL connections” and “specified connection” relate to the intermediary device and the end users. Wi-LAN argued that “UL connections” are the “services” that receive bandwidth allocation from the intermediary device:

Similar to the use of “connections” in the ’040 Patent, “UL connections,” as used in the ’640 Patent, means “uplink services.” Claim 1 requires that the wireless unit allocate bandwidth to its connections, and the specification makes clear that *these connections are the services supported by the wireless unit*.

(JA2943 (emphasis added).) Wi-LAN equated services with end users: “The specification uses ‘service’ and ‘end user’ interchangeably . . . .” (JA2933.) The only material dispute between the parties with respect to these terms, then, was whether they referred to the end users or services themselves, or rather represented a relationship between end users or services and the intermediary device. (JA99–100, JA111–13, JA2896, JA2903–05, JA5518–21.)

On December 23, 2013, the district court issued its claim construction order. The district court construed the term “UL connection” in the ’640 Patent as “an uplink connection between the wireless subscriber radio unit and its users.” (JA27.) The district court construed the term “specified connection” in the ’040

Patent as “the communications link between a node and a specific end user.” (JA23–24.)

The district court also provided constructions for the intermediary devices, which Wi-LAN does not appeal. The district court construed the term “wireless subscriber [communication] radio unit” in the ’640 Patent as a “module that receives UL bandwidth from a base station, and allocates the bandwidth across its user connections.” (JA26–27.) The district court construed the term “node” in the ’040 Patent as the “module between a base station and an end user that directs transmission of data over a communications link.” (JA22–23.)

After changing counsel (JA2946–65), Wi-LAN filed a motion for reconsideration of the district court’s claim construction order. (JA2966–68.) In its motion, Wi-LAN requested clarification regarding the district court’s construction of the terms “node” and “wireless subscriber radio unit.” (JA5546–55.) Wi-LAN asked the district court to confirm that Wi-LAN could argue that the “node” and the “wireless subscriber [communication] radio unit” as construed could be a component of a cell phone or tablet. (JA5553–55; *see also* JA5489–90.) Without this finding, Wi-LAN conceded it would be unable to make an infringement case against Apple’s Accused Products. (JA119.) While Wi-LAN sought reconsideration of other claim terms (JA5555–58), it did not seek reconsideration of the terms “UL connections” and “specified connection.”

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(JA5544–58, JA116–29.) Nor did Wi-LAN raise the construction of these terms at the hearing on its reconsideration motion. (*See* JA2712–61.) Indeed, Wi-LAN had conceded to those constructions.

The district court ruled in favor of Wi-LAN, and Apple then filed its own motion for reconsideration of the district court’s revised order. (JA2985–89, JA5535–38.) Throughout this second round of briefing, Wi-LAN again failed to raise any issue with the district court’s construction of the terms “UL connections” or “specified connection.” (*See* JA2992–3007.)

2. *Wi-LAN’s Infringement Contentions*

Wi-LAN served its initial infringement contentions on May 24, 2013, and followed those up with four sets of supplemental or amended infringement contentions over the course of discovery. (*See* JA3009–4234.) In each of those contentions, [REDACTED]

[REDACTED]

[REDACTED].

(*See, e.g.*, JA3177, JA3388, JA3539, JA3691, JA3892, JA4116–117.) Wi-LAN consistently took the position [REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]. (*See, e.g.*, JA3177, JA3388, JA3539, JA3691, JA3892, JA4116–117.)

3. *Wi-LAN's Expert Reports and Deposition Testimony*

On June 6, 2014, Wi-LAN served its expert report regarding infringement.

Consistent with Wi-LAN's infringement contentions, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]:

[REDACTED]

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(JA4556 (annotated).) Wi-LAN's expert never equated the "UL connection" with the link between the baseband processor and the base station [REDACTED]

[REDACTED].

On July 7, 2014, Wi-LAN served expert reports regarding validity from two separate experts. (JA162–271, JA4781–5056.) Both of Wi-LAN's experts identified the "UL connections" as the connections between the end users and the subscriber unit. (See JA169, JA4815.) At their depositions, Wi-LAN's experts confirmed their understandings of the "connection" terms as the connections between the end users and the subscriber unit. (JA4763–64 at 150:9–151:14, JA4766 at 153:5–22, JA4769–71 at 156:20–158:12, JA4775–76 at 324:15–325:2, JA4777–79 at 379:23–381:12, JA4780 at 384:2–25.) Neither expert equated these terms with the link between the subscriber unit and the base station. (JA4763–64 at 150:9–151:14, JA4766 at 153:5–22, JA4769–71 at 156:20–158:12, JA4775–76 at 324:15–325:2, JA4777–79 at 379:23–381:12, JA4780 at 384:2–25.)

4. *Apple's Motion for Summary Judgment*

On August 22, 2014, Apple moved for summary judgment of non-infringement of the '640 Patent on the grounds that the asserted claims require multiple "UL connections" and that the Accused Products contain at most one "UL connection." (JA150–58, JA5499–503.) Apple similarly moved for summary judgment of non-infringement of the '040 Patent on the grounds that the asserted



claims require more than one “specified connection” and the Accused Products contain at most one “specified connection.” (JA145–56, JA5495–99.)

In its opposition, Wi-LAN argued that neither Patent-in-Suit required multiple “connections” (JA1052–56, JA1060–63) but that, in any event, the Accused Products did contain multiple “connections” *between the user and the intermediary device* (JA1059, JA1064–66). Nowhere in its opposition did Wi-LAN argue that the term “UL connections” referred to the link between the subscriber unit and the base station. Nor did counsel for Wi-LAN raise such an interpretation at the hearing. (*See* JA1059–65, JA5057–81.)

Ultimately, the district court found that the asserted claims of the Patents-in-Suit did require multiple “UL connections” or “specified connections” and, because the Accused Products did not contain multiple connections, Apple did not infringe either of the Patents-in-Suit. (JA6–15.)

5. *Wi-LAN’s Motion for Reconsideration of the Court’s Order on Summary Judgment*

On October 28, 2014, Wi-LAN moved for reconsideration of the district court’s order on summary judgment. (JA1072–102.) Here, Wi-LAN argued *for the first time* that the term “UL connections” in the ’640 Patent refers to the link between the intermediary subscriber unit and the base station—not connections between the end users and the subscriber unit. (JA1078–87.) In doing so, Wi-LAN did not seek reconsideration of the ruling with respect to claim 6,

acknowledging that the “connections” in claim 6 refer to the links between the users and the subscriber unit. (JA1087–88.)

Similarly, Wi-LAN argued *for the first time* that the term “specified connection” in the ’040 Patent refers to the link between the intermediary node and the base station—not connections between the end users and the node. (JA1088–94.) Wi-LAN argued in the alternative that, even if the term “specified connection” refers to the connection between an end user and the intermediary node, the ’040 Patent does not require multiple “specified connections.” (JA1094–100.)

The district court denied Wi-LAN’s motion. (JA3–5.)

#### 6. *The Present Appeal*

Wi-LAN now appeals from the district court’s order on summary judgment and corresponding order on reconsideration. (*See* Br. at 2–3.) As to the ’640 Patent, Wi-LAN appeals the construction of the term “UL connections” and raises its new infringement theory—that the term refers to the link between the intermediary subscriber unit and the base station. (*See* Br. at 2–3, 14–15.) Wi-LAN does not appeal the district court’s judgment with respect to independent claim 6 and its dependent claim 7. (Br. at 11.)

As to the ’040 Patent, Wi-LAN argues *for the first time* that the term “specified connection” should be construed differently than the term “UL

connections.” (*See* Br. at 3–4.) This is a position directly contrary to the position Wi-LAN took at every stage in the district court proceedings, as Wi-LAN has always argued that the terms should be construed similarly. (*See* Section VII.C.3, *infra*.) As such, Wi-LAN concedes that the term “specified connection” in the ’040 Patent refers to the connection between a user and the intermediary node, but continues to argue that the ’040 Patent does not require multiple “specified connections.” (*See* Br. at 15–16.)

## **VI. SUMMARY OF THE ARGUMENT**

The district court properly found that the Accused Products do not infringe either of the Patents-in-Suit because the Patents-in-Suit require multiple “UL connections” or “specified connections,” and the undisputed facts demonstrate that the Accused Products contain at most one such connection.

With respect to the ’640 Patent, Wi-LAN concedes that the ’640 Patent requires multiple connections but now argues for a different construction of the term “UL connections.” (Br. at 14–15.) However, Wi-LAN waived this new construction by failing to raise it during the underlying proceedings. Furthermore, the asserted claims themselves, the patent specification, and the prosecution history all support the district court’s construction of the term “UL connections” as connections between end users and the intermediary subscriber unit—not the link between the subscriber unit and the base station.

With respect to the '040 Patent, Wi-LAN argues that the asserted claims do not require multiple “specified connections.” However, the asserted claims read as a whole, and in the context of the specification, do require multiple “specified connections.”

Under the proper interpretations of the disputed terms and claims, the Accused Products do not infringe the Patents-in-Suit, and, therefore, the Federal Circuit should affirm summary judgment of non-infringement of each of the Patents-in-Suit.

## **VII. ARGUMENT**

### **A. Standard of Review**

#### *1. Claim Construction*

This Court’s review of the district court’s claim construction is *de novo*. *Teva Pharm. USA, Inc. v. Sandoz*, 135 S. Ct. 831, 841 (2015). “Claim terms are generally given their plain and ordinary meanings to one of skill in the art when read in the context of the specification and prosecution history.” *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc)). However, “‘a party may not introduce new claim construction arguments on appeal or alter the scope of the claim construction positions it took below.’” *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1273 (Fed. Cir. 2012) (quoting

*Conoco, Inc. v. Energy & Env'tl. Int'l, L.C.*, 460 F.3d 1349, 1358–59 (Fed. Cir. 2006)).

## 2. *Summary Judgment*

This Court reviews the grant of summary judgment under the law of the regional circuit in which the district court sits. *Lexion Med., LLC v. Northgate Techs., Inc.*, 641 F.3d 1352, 1358 (Fed. Cir. 2011). Applying the law of the Ninth Circuit, an appellate court reviews a summary judgment decision *de novo*. *Humane Soc'y of the U.S. v. Locke*, 626 F.3d 1040, 1047 (9th Cir. 2010).

Summary judgment of non-infringement is appropriate “when no reasonable jury could find that every limitation recited in a properly construed claim” is found in the accused product or process. *PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1364 (Fed. Cir. 2005) (citing *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353–54 (Fed. Cir. 1998)). A patentee that fails to provide probative evidence of infringement may be subject to summary judgment. *Novartis Corp. v. Ben Venue Labs., Inc.*, 271 F.3d 1043, 1050 (Fed. Cir. 2001).

### **B. The Federal Circuit Should Affirm the District Court’s Construction of “UL Connections” in the ’640 Patent**

#### 1. *Wi-LAN Waived Its New Construction of “UL Connections”*

Throughout comprehensive claim construction proceedings (and two corresponding motions for reconsideration), five sets of infringement contentions, months of fact discovery, a full round of expert reports, and fully-briefed summary

judgment motions, Wi-LAN asserted an infringement theory based on the “UL connections” being between the end users and the subscriber unit. (*See* Sections V.C.1–4, *supra*.) Based on this theory, the district court found that the Accused Products did not infringe the ’640 Patent and granted summary judgment of non-infringement. (JA12–14.) Only then did Wi-LAN shift positions and claim that “UL connections” are between the subscriber unit and the base station. (*See* JA1078–87.) Wi-LAN has therefore waived this new argument. “An argument made for the first time in a motion for reconsideration comes too late and is ordinarily deemed waived.” *Golden Bridge*, 758 F.3d at 1369 (affirming summary judgment of non-infringement where plaintiff-appellee, “having failed to persuade the court that a genuine issue of material fact remained with respect to its [original] infringement theory . . . present[ed] a new infringement theory on reconsideration”).

In its Opening Brief, Wi-LAN states that it raised this new argument during the original claim construction proceedings. (Br. at 12 (“Wi-LAN had proposed that ‘UL connections’ means ‘uplink services’ between the subscriber unit and the base station.”).) Wi-LAN is incorrect.<sup>3</sup> Wi-LAN proposed that the term “UL connections” be construed as “uplink services,” but did not argue that those

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<sup>3</sup> Notably, Wi-LAN cites only to the ’640 Patent text to support this statement (*see* Br. at 12), as Wi-LAN failed to make this argument in its own claim construction briefing.

services were located between the subscriber unit and the base station. (JA111–13.) In fact, such an argument would have been inconsistent with Wi-LAN’s original proposed construction. As Wi-LAN noted in its claim construction briefing, “services” originate with the end user: “The specification uses ‘service’ and ‘end user’ interchangeably . . . .” (JA2933; *see also* JA92.) Indeed, at the claim construction hearing, counsel for Wi-LAN made clear that the “UL connections” limitation of claim 1<sup>4</sup> does not involve the base station, and instead describes only “what happens *inside the wireless unit* once it gets that bandwidth grant from the base station.” (JA2838 at 69:8–11 (emphasis added).) And, as Wi-LAN further made clear at the hearing, its infringement theory at that time relied on the term “UL connections” referring to applications within a wireless device—not to any connection to the base station:

So Wi-LAN’s construction [“uplink services”] is consistent with the claim language, Your Honor, because in the context of bandwidth allocation -- which is what we are talking about here, allocating bandwidth -- the specification teaches us that *by connection it means those services, like video and browsing the Internet, that the wireless unit provides.*

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<sup>4</sup> The “UL connections” limitation of claim 1 reads:

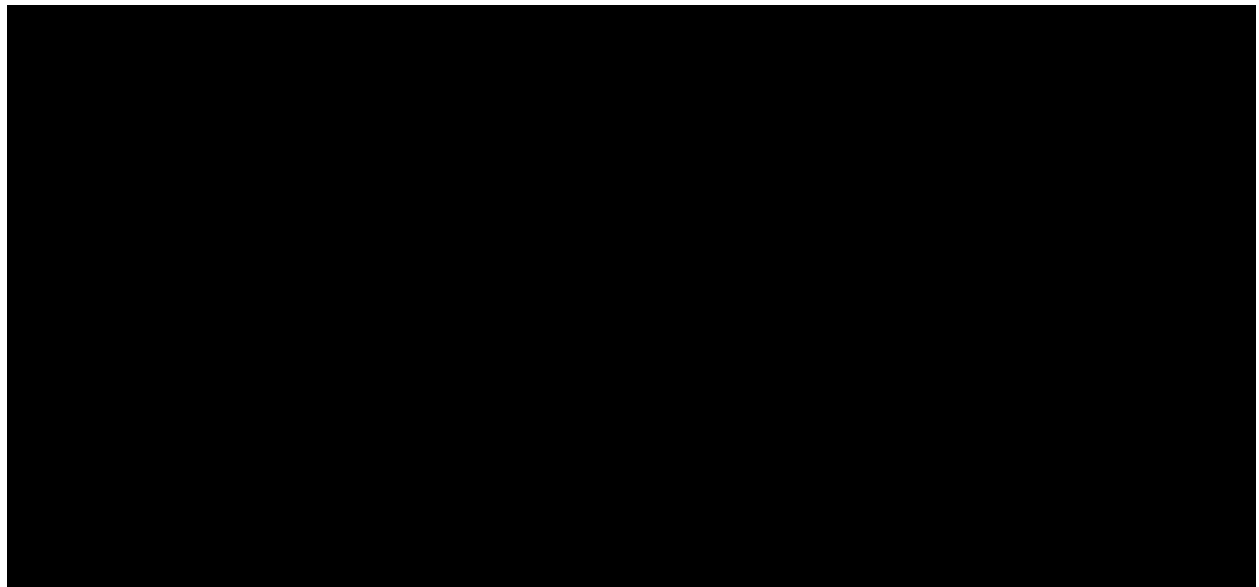
wherein the wireless subscriber radio unit maintains a plurality of queues, each queue for data pertaining to one or more UL connections with similar QoS and wherein the wireless subscriber radio unit *allocates the UL bandwidth grant* to the one or more *UL connections* based on QoS priority.

(JA84 at 23:28–33 (emphases added).)

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(JA2838–39 at 69:22–70:2 (emphasis added); *see also* JA2841 at 72:16–21: (“[t]he bandwidth allocation is being done *within the wireless subscriber radio unit*, and it is *allocating resources . . . to video, to voice*, in whatever priority the wireless subscriber radio unit deems appropriate once that grant has been made”) (emphases added).) Wi-LAN’s construction of the term “UL connections” therefore referred to “services” running *inside* a subscriber unit—not any external “connections” to the base station.

Nor did Wi-LAN attempt to raise its new argument regarding “UL connections” during discovery. Wi-LAN’s own expert identified the “UL connection” as the connection between the user and subscriber unit:



(*See* JA4556 (annotated).) As shown in Wi-LAN’s figure above, 



 .



Indeed, Wi-LAN would not have been able to raise its new “UL connections” argument during the district court proceedings based on the claims it was asserting. Up through summary judgment, Wi-LAN asserted both independent claim 1 and independent claim 6 of the ’640 Patent. (*See* JA1087–88.) But as discussed *infra* (*see* Section VII.B.3), claim 6 is incompatible with Wi-LAN’s new construction. Consequently, Wi-LAN does not appeal the district court’s ruling of non-infringement with respect to claim 6. (Br. at 11.)

The district court also acknowledged that Wi-LAN raised its new theory for the first time in its motion for reconsideration of the summary judgment order:

Notably, the present motion is the first time Wi-Lan has challenged the Court’s constructions of these [“connection”] terms, despite filing a motion for reconsideration of other terms and the passage of more than ten months since the Court issued its rulings. The impetus for Wi-Lan’s motion appears to be the Court’s finding of noninfringement, which although adverse to Wi-Lan, does not demonstrate the Court’s claim construction is clearly erroneous. The evidence Wi-Lan relies on to support its argument of clear error is not newly discovered. It has been available to Wi-Lan since the outset of this case, as have the arguments it raises in the present motion.

(JA4.) As the district court recognized, Wi-LAN raised its new construction of the term “UL connections” for the first time only in response to an adverse summary judgment ruling.

That district courts may engage in “rolling claim construction” does not give Wi-LAN license to raise an entirely new infringement theory relying on a new and substantially different claim construction after an adverse summary judgment

ruling. Under this Court’s precedent, Wi-LAN’s new theory is waived. In *Golden Bridge*, plaintiff-appellant GBT raised a new infringement theory for the first time on reconsideration of an adverse summary judgment ruling. 758 F.3d at 1368–69. Throughout the district court proceedings, including infringement contentions, expert reports, and summary judgment briefing, GBT had asserted a different theory. *Id.* at 1369. In holding that GBT had waived its newly-proposed infringement theory by raising it for the first time on reconsideration, this Court noted the impropriety and unfairness of GBT’s tactics:

It would be fundamentally unfair to allow GBT, after losing the claim construction arguments at issue and the summary judgment on its infringement contentions, to change those contentions. Though parties can certainly argue in the alternative, their infringement contentions cannot be a moving target.

*Id.*; see also *Finnigan Corp. v. Int’l Trade Comm’n*, 180 F.3d 1354, 1363 (Fed. Cir. 1999) (“A party’s argument should not be a moving target.”); *Bhatnagar v. Surrendra Overseas Ltd.*, 52 F.3d 1220, 1231 (3d Cir.1995) (cited approvingly by the Federal Circuit in *Golden Bridge*) (rejecting a motion for reconsideration as a “second bite at the apple” and explaining that “[h]aving failed in its first effort to persuade the court,” the plaintiff “simply changed theories and tried again”); *Senza–Gel Corp. v. Seiffhart*, 803 F.2d 661, 663–64 (Fed. Cir. 1986) (“[A] motion for reconsideration is not a chance at a second bite” and should not “enable the movant to ‘sandbag’ an adversary.”). Wi-LAN had the opportunity to raise its new

construction earlier in the district court proceedings; it had all of the “evidence” it now relies on available to it for the entirety of the proceedings. (JA4.) Wi-LAN even had the opportunity to argue this new construction in the alternative during the multiple rounds of claim construction, or during discovery or summary judgment. (JA4.) Wi-LAN did not. (JA4.) Instead, Wi-LAN raised it only after losing on summary judgment. (JA4.) Such conduct constitutes waiver. *See Digital-Vending Servs.*, 672 F.3d at 1274 (“Because Digital-Vending’s newly proposed construction for ‘content managed by architecture’ is substantially different in scope from the construction it sought below, this court will not attempt to review an argument not presented first to the trial court.”)

2. *The Intrinsic Evidence Supports the District Court’s Construction of “UL Connections”*

In the context of the claims and specification of the ’640 Patent, the district court correctly construed the term “UL connections” to refer to connections between the end users and the intermediary subscriber unit. Indeed, the fundamental disclosure of the ’640 Patent is an intermediary device that communicates directly with a single base station on behalf of multiple users.<sup>5</sup> (*See, e.g.*, JA73 at 1:65–2:13.) Thus, interpreting “UL connections” as connections from multiple users to the intermediary device comports much more closely with the

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<sup>5</sup> Wi-LAN does not appeal the district court’s holding that the ’640 Patent requires multiple “UL connections.” (Br. at 1, 13.)

disclosure of the '640 Patent than Wi-LAN's interpretation of "UL connections" as multiple connections from an intermediary to a single base station.

Indeed, the claims of the '640 Patent themselves only support the former interpretation. For example, claim 1 describes the process by which the intermediary "wireless subscriber radio unit" first requests and receives a bandwidth grant from the base station (without reference to "UL connections") then allocates that bandwidth:

1. A method for requesting bandwidth on demand in a wireless communication system, wherein the wireless communication system includes a wireless subscriber radio unit, the method comprising:

registering the wireless communication radio unit with a base station in the wireless communication system and establishing communication between the wireless subscriber radio unit and the base station;

transmitting from the wireless subscriber radio unit which is registered with the base station, an explicit message to the base station requesting to be provided an allocation of uplink (UL) bandwidth in which to transmit a bandwidth request;

receiving at the wireless subscriber radio unit the allocation of UL bandwidth in which to transmit a bandwidth request;

transmitting the bandwidth request within the allocation of UL bandwidth, the bandwidth request specifying a requested UL bandwidth allocation; and

***receiving an UL bandwidth grant*** for the wireless subscriber radio unit in response to the bandwidth request;

wherein the wireless subscriber radio unit maintains a plurality of queues, each queue for data pertaining to ***one or more UL connections*** with similar QoS and ***wherein the wireless subscriber***

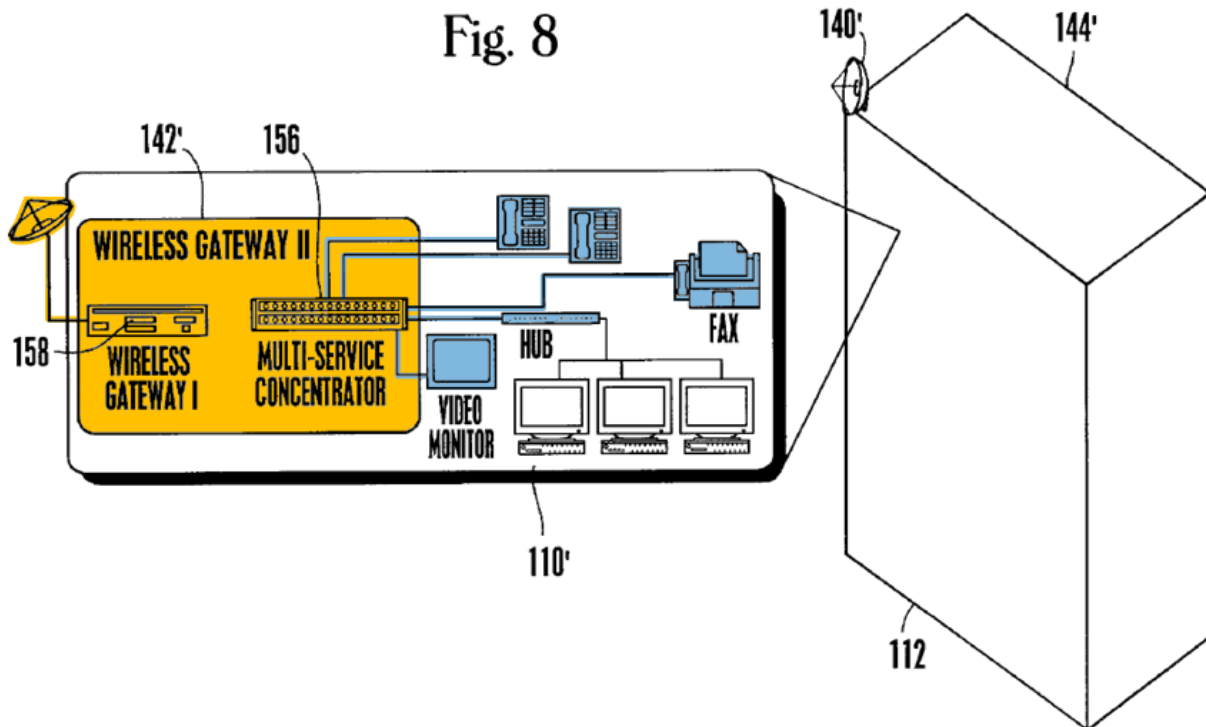
***radio unit allocates the UL bandwidth grant to the one or more UL connections based on QoS priority.***

(JA84 at 23:7–33 (emphases added).) The last step makes clear that *after* receiving a bandwidth grant, the wireless subscriber radio unit then allocates that bandwidth to end users via UL connections based on QoS priority of each connection. (JA84 at 23:28–33.)

It would make no sense for the intermediary subscriber unit, after receiving a bandwidth grant from the base station, to allocate that bandwidth grant back to the base station over multiple connections. Instead, consistent with the stated purpose of the invention, the subscriber unit allocates that bandwidth to its end users via the “UL connections.” Accordingly, the claims make clear the subscriber unit performs the intermediary functions of (1) requesting bandwidth from the base station *on behalf of* users, (2) receiving a UL bandwidth grant, and (3) allocating the UL bandwidth grant from the base station *to* these users through “UL connections,” necessarily placing the “UL connections” between the end users and the subscriber unit.

In addition to the claims themselves, the specification also makes clear that that intermediary subscriber unit allocates bandwidth to its end users, not back to the base station. The specification indicates the subscriber unit requests bandwidth on behalf of the users (*see* JA73 at 2:57–61) and distributes the allocated bandwidth to the users based on QoS priority. (JA74 at 3:1–4, 4:34–41, JA82 at

19:29–31, JA 83 at 22:48–53, JA84 at 23:7–24:45.) Figures 7 and 8 of U.S. Patent No. 6,016,311, incorporated in the '640 Patent by reference (JA73), illustrate this relationship. (JA5088–89.) Figure 8, reproduced below, depicts an intermediary device (akin to the “subscriber unit”) consisting of an antenna (140') and a “wireless gateway” (142') serving multiple users on a plurality of connections:



(JA5088 (annotated); *see also* JA5095–96 at 12:26–13:3.)<sup>6</sup>

There would be no reason to allocate bandwidth only between the base station and the intermediary subscriber unit, without regard to the end users. Other than minimal control data (that is, data required to regulate communication

<sup>6</sup> Substantially identical figures also appear in U.S. Patent No. 6,925,068, to which the '640 Patent claims priority (JA57). (*See* JA5107–11.)

between the subscriber unit and the base station), a subscriber unit has no user data of its own to send to the base station. (*See* JA4780 at 384:2–25.)

In view of the intrinsic record describing the invention as an intermediary device allocating bandwidth to its end users, the district court correctly construed the term “UL connection” as “an uplink connection between the wireless subscriber radio unit and its users.” (JA27.)

3. *The Claims of the '640 Patent Support the District Court's Construction of “UL Connections”*

Wi-LAN's new theory for “UL connections” is inconsistent with other claim terms in the '640 Patent as well. For example, Wi-LAN's new theory is inconsistent with the term “wireless subscriber radio unit” as disclosed in claim 1. The district court construed the term “wireless subscriber radio unit” as a “module that receives UL bandwidth from a base station, and *allocates the bandwidth across its user connections.*” (JA26–27 (emphasis added).) Wi-LAN does not appeal this construction.

Construction of “wireless subscriber radio unit”	Language of claim 1
a module that receives UL bandwidth from a base station, and <i>allocates the bandwidth</i> across its <i>user connections</i>	. . . the <i>wireless subscriber radio unit allocates the UL bandwidth grant</i> to the one or more <i>UL connections</i> based on QoS priority.

Reading the construction of “wireless subscriber radio unit” in the context of claim 1, it is clear that the allocated bandwidth is the “UL bandwidth grant” from the

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base station, and it is allocated to the users via “UL connections.” Thus, the district court appropriately recognized the stated purpose of the intermediary subscriber unit to request bandwidth from the base station, and to allocate the granted bandwidth to its end users.

By now construing the term “UL connections” so that the subscriber unit would allocate bandwidth back to the base station, Wi-LAN fails to recognize the role of users in generating data to be transmitted in the uplink direction. Even the inventor of the ’640 Patent noted the fallacy of this position: [REDACTED]

[REDACTED]

[REDACTED] (JA4780 at 384:2–25.)

Wi-LAN’s new theory is also inconsistent with the term “connections” in claim 6. Wi-LAN does not dispute that the term “connections” in claim 6 (and its dependent claim 7) refers to user connections between the end users and the subscriber unit. (*See Br.* at 23.) But, just as in claim 1, claim 6 requires the subscriber unit to allocate bandwidth across user connections:

6. A method of allocating uplink (UL) bandwidth on demand in a wireless subscriber radio unit, comprising:

registering the wireless subscriber radio unit with a base station in a wireless communication system and establishing communication between the wireless subscriber radio unit and the base station;

determining a required amount of UL bandwidth for a UL queue at the wireless subscriber radio unit, wherein the UL queue comprises traffic



with similar quality of service (QoS) received on a plurality of connections;

transmitting from the wireless subscriber radio unit an explicit message to the base station requesting to be provided an allocation of UL bandwidth in which to transmit a bandwidth request;

receiving at the wireless subscriber radio unit the allocation of UL bandwidth in which to transmit a bandwidth request;

sending the bandwidth request indicative of the required amount of UL bandwidth for the UL queue to the base station;

*receiving from the base station an UL bandwidth grant* for the wireless subscriber radio unit; and

*allocating, at the wireless subscriber radio unit, the UL bandwidth grant to one or more of a plurality of connections at the wireless subscriber radio unit;*

*wherein the wireless subscriber radio unit allocates the UL bandwidth grant to the one or more of the plurality of connections based on QoS connection priority.*

(JA84 at 24:1–28 (emphases added).) Similar to claim 1, the last two steps of claim 6 make clear that the subscriber unit receives a UL bandwidth grant and distributes that grant to its end users based on QoS priority. There is no support for Wi-LAN’s different interpretation of the function of the subscriber unit in claim 1. Further, claim 6 indicates that uplink data is “*received* on a plurality of connections” at the subscriber unit. This language demonstrates that the term “connections” in claim 6 refers to connections between users and the intermediary subscriber unit because uplink data, by definition, only flows in the direction of end user to base station. Wi-LAN’s new interpretation of claim 1 is therefore at

odds with the patent specification. The '640 Patent simply does not disclose a subscriber unit that can allocate bandwidth across both (1) connections to the end users and (2) links to the base station.

4. *The '640 Patent Does Not Support Wi-LAN's New Construction of "UL Connections"*

Wi-LAN points to selective pieces of the intrinsic record in an attempt to support its new argument regarding "UL connections." (Br. at 17–24.) But when read within the context of the '640 Patent as a whole, Wi-LAN's selective citations do not support Wi-LAN's new theory.

First, Wi-LAN attempts to equate the term "uplink transmissions," which is used in the patent to refer to transmissions from the subscriber unit to the base station, with the term "UL connections." (Br. at 17–18.) However, the '640 Patent provides no basis to equate these distinct terms. Indeed, the fact that the patentee differentiated between those terms indicates they are not interchangeable.<sup>7</sup> And simply because both terms refer to the "uplink" direction is no basis to equate them.<sup>8</sup> The term "uplink" simply describes the direction of the transmissions toward the base station (and greater network) as distinguished from "downlink" transmissions:

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<sup>7</sup> For this reason, Wi-LAN's reliance on *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363 (Fed. Cir. 2009) is misplaced. It is indisputable that the patentee does not define "UL connections" anywhere in the specification.

<sup>8</sup> There is no dispute that the term "UL" means uplink. (Br. at 2, JA27.)

Transmissions from the base station to the subscriber unit are commonly referred to as “downlink” transmissions. Transmissions from the subscriber unit to the base station are commonly referred to as “uplink” transmissions.

(JA73 at 1:49–52.) *See Phillips*, 415 F.3d at 1313 (holding that terms are generally given the plain and ordinary meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention). Indeed, virtually every connection in a network has an uplink and downlink direction. Thus, contrary to Wi-LAN’s suggestion, the specification’s description of uplink transmissions does not define the term “UL connections.” Nor does it locate the “UL connections” between the base station and a subscriber unit. As described above, a subscriber unit does not have any user data of its own to send uplink, making it impossible for the term “uplink” to be limited to data flow from the subscriber unit to the base station.

Wi-LAN’s attempt to rely on the following language in claim 5 of the ’640 Patent also fails: “UL connections established at the wireless subscriber radio unit.” (Br. at 19.) According to Wi-LAN, because the “UL connections” can be established at the subscriber unit, they cannot connect to users. (*See* Br. at 18–19.) The ’640 Patent however does not support this interpretation. “UL connections” represent some relationship between two endpoints. Merely because the subscriber unit is one endpoint, or can “establish” connections, does not mean that the other endpoint must be the base station. Wi-LAN also relies on its own conclusory

statement that “the claims focus squarely and solely on the communication between the subscriber unit and the base station . . . .” (Br. at 18.) Wi-LAN cites only the claim language in support of this conclusion but, as Wi-LAN has acknowledged in the past (and as discussed above), the claims do not support allocating a bandwidth grant back to the base station:

The bandwidth allocation is being done *within the wireless subscriber radio unit*, and it is *allocating resources . . . to video, to voice*, in whatever priority the wireless subscriber radio unit deems appropriate once that grant has been made. . . .

(JA2841 at 72:16–21 (emphases added).) By Wi-LAN’s own admission, the claims are not limited to communication between the subscriber unit and the base station.

Finally, Wi-LAN points to Figure 10 of the ’640 Patent to argue that “UL connections” exist between the subscriber unit and base station. (Br. at 19–20.) But, as the specification indicates, the multiple arrows on Figure 10 show the timing of messages the subscriber unit uses to request and receive bandwidth from the base station:

***FIG. 10 shows the message sequence that is used by the present invention in requesting polls using the “poll-me” bit. . . As shown in FIG. 10 at data connection 930, the CPE initiates a polling sequence by setting its associated poll-me bit in the MAC header. The base station MAC responds via data messages 932 by individually polling the selected CPE. This response is made by allocating bandwidth to the selected CPE in the uplink sub-frame map as show in in FIG. 10. The selected CPE subsequently responds with a bandwidth request as shown in communication path 934. In response to the CPE’s***

***bandwidth request, the base station grants bandwidth and allocates bandwidth to the CPE*** in the uplink sub-frame map as shown in communication path 936. ***The selected CPE then transmits its data to the base station via an associated connection link.***

(JA81 at 17:57–18:4 (emphases added); *see also* JA75 at 5:38–39.) The intermediary device does not have user data of its own to transmit and instead transmits the data of its end users. (See JA4780 at 384:2–25.) Thus, the data shown in Figure 10 originates from users via connections *n* and *k*, and is sent at different times during the messaging sequence. Figure 10 does not show multiple connections between the intermediary device and the base station. Instead, it illustrates a bandwidth polling process. This same polling technique is illustrated in the flow chart in Figure 9 of the '640 Patent:

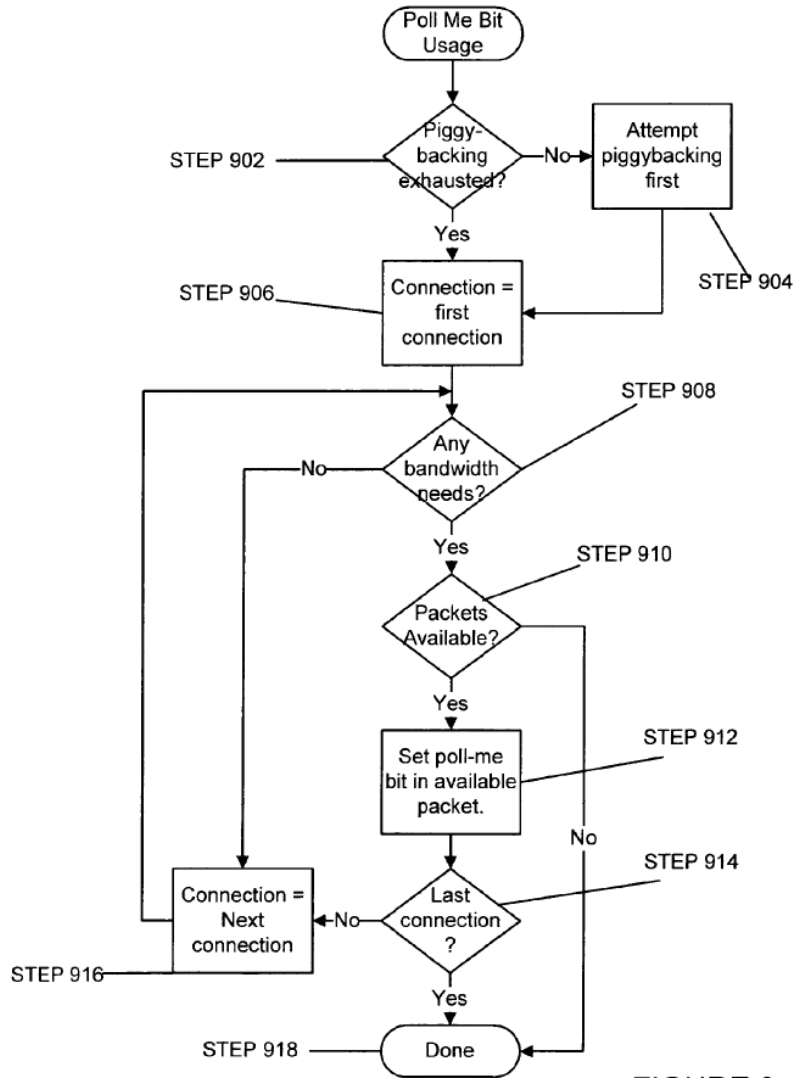


FIGURE 9

(JA68; *see also* JA75 at 5:35–37.) Both of these figures illustrate timing—not physical connections. Regardless, neither Figure 10 nor Figure 9 reference “UL connections.” To the extent Wi-LAN relies on Figure 10 to argue that uplink data communication only exists between the subscriber unit and the base station (*see* Br. at 20), that argument also fails. As discussed above, uplink refers simply to the directional flow of data; not all data traveling in the uplink direction is located between the subscriber unit and the base station. Accordingly, Figure 10 provides

no basis to conclude that “UL connections” must refer to the link between the subscriber unit and the base station.

5. *The Prosecution History for the '640 Patent Does Not Support Wi-LAN's New Construction*

Wi-LAN also refers to the patent examiner's discussion of U.S. Patent No. 6,097,733 (the “Basu Patent”) in the prosecution history for the '640 Patent to support its new theory for “UL connections.” (Br. at 20–22.) But the patent examiner, in considering the Basu Patent, never addressed the term “UL connections” as it appears in claim 1.<sup>9</sup>

When Wi-LAN filed its application for the '640 Patent, the proposed claims looked much different than they do in the issued patent. (*Compare* JA1131–34, *with* JA84 at 23:7–24:45.) At that time, the patent examiner did not understand any of the claims to describe an intermediary device, except original claim 18. The patent examiner indicated that a limitation found only in original claim 18 suggested the subscriber unit was acting as an intermediary, and he sought clarification on this point:

Claim 18 puts forth “grouping at the subscriber station data received on a plurality of connection(s)” which is confusing, eg.[sic] where did the data come from? The examiner interprets that it is from perhaps other mobile devices (?) and hence the subscriber station is acting as a

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<sup>9</sup> For this reason, Wi-LAN's reliance on *Cordis Corp. v. Medtronic Ave*, 339 F.3d 1352, 1359–60 (Fed. Cir. 2003) is inapplicable. As discussed *infra*, the district court's construction is not inconsistent with the patent examiner's interpretation.

**relay.** If this is NOT the case, the application should amend the claim to be more explicit as to where this data is coming from.

(JA1240 (emphasis in original).) Wi-LAN never provided clarification and instead canceled claim 18 before the patent examiner ever considered the Basu Patent.

(JA1254–61, JA1268.) Thus, at the time of the patent examiner’s rejection in view of the Basu Patent, he only had before him claims he understood did not have a subscriber unit that acted as an intermediary. (*See* JA1265–75.)

Furthermore, when the patent examiner cited the Basu Patent to reject then-pending claim 1 of the ’640 Patent application, he relied solely on Figure 7 of the Basu Patent, which describes an algorithm allocating bandwidth *within the base station*. (JA1268–70, JA1637, JA1645–46 at 12:1–13:3.) Thus, when the patent examiner looked at the dependent claims of the application, which contain “UL connections,” he was doing so from the perspective of a base station allocating bandwidth to wireless mobile units. (JA1645–46 at 12:1–13:3.) In response, Wi-LAN distinguished the Basu Patent and argued that (1) the subscriber unit was an intermediary, and (2) the Basu Patent did not disclose allocation at the intermediary to each user connection:

. . . Basu also does not teach or suggest “allocating, at the wireless subscriber radio unit, the UL bandwidth grant to one or more of a plurality of connections at the wireless subscriber radio unit.” Basu describes the base station allocating bandwidth to voice or data for a subscriber. *Basu does not appear to have any teaching of the subscriber station receiving a bandwidth allocation and then making the determination on how to allocate that bandwidth to its*



**connections.** Placing that function in the subscriber station can allow for more flexibility at the subscriber station and more intelligent allocation of the limited bandwidth.

(JA1357 (emphasis added).) As shown, Wi-LAN argued during prosecution that the “subscriber station receiv[es] a bandwidth allocation and then mak[es] the determination on how to allocate that bandwidth to its connections.” (JA1357.) Placing multiple connections between the subscriber station and base station would be contrary to the stated purpose of conserving bandwidth by minimizing connections with the base station.

After Wi-LAN filed an appeal with the Board of Patent Appeals, the patent examiner withdrew his rejection on June 20, 2012. (*See* JA1564–68, JA5146–67, JA5173–84.) In explaining his decision, the examiner stated that he “initially had difficulty understanding the applicant’s inventive concept since the claims were highly confusing with regard to the basic operation of the system.” (JA5173.) Several months later, Wi-LAN added the bandwidth allocation limitation to claim 1, effectively turning it into original claim 18. (JA5193.)

6. *Apple’s Products Do Not Infringe the ’640 Patent*

In the present appeal, Wi-LAN does not dispute that under the district court’s construction of the term “UL connections,” the Accused Products do not infringe the ’640 Patent. As demonstrated above, the district court properly construed the term “UL connection” to mean “an uplink connection between the

wireless subscriber radio unit and its users.” Moreover, the district court concluded, and Wi-LAN does not appeal, that the asserted claims of the ’640 Patent require multiple connections. (JA12–14.) Finding no multiple “UL connections” in the Accused Products, the district court correctly held that the Accused Products do not infringe the ’640 Patent. Accordingly, because the Asserted Products do not contain multiple “UL connections,” as the term is properly construed, summary judgment of non-infringement of the ’640 Patent should be affirmed.

**C. The Federal Circuit Should Affirm the District Court’s Conclusion that the Asserted Claims of the ’040 Patent Require Multiple “Specified Connections”**

1. *The Intrinsic Evidence Supports the District Court’s Conclusion that the Claims Require Multiple “Specified Connections”*

Wi-LAN disputes that the asserted claims of the ’040 Patent require multiple “specified connections.” However, Wi-LAN does not appeal the district court’s construction of the term “specified connection” as “the communications link between a node and a specific end user.” (See JA24.) It is undisputed, then, that a “specified connection” is associated with a user.<sup>10</sup>

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<sup>10</sup> As discussed *infra*, this reinforces the district court’s construction of “UL connections” in the ’640 Patent. Until its Opening Brief, Wi-LAN always defined the terms “UL connections” and “specified connection” in the same way. (JA99, JA2932.)

As demonstrated in the specification, the '040 Patent requires multiple users, making clear that the claimed invention requires multiple “specified connections” as well.

First, the '040 Patent specification discloses that “each node 16 serv[es] ***multiple connections*** for ***users***. The users may be a service network such as a LAN, WAN, Intranet, Ring Network or other type of network; or they may be a single user such as a work station.” (JA47 at 4:40–44 (emphasis added); *see also* JA32.) Moreover, the invention of the '040 Patent “relates to a system and method of formatting data arriving in ***SDUs of various formats*** into different packets, having a ***PDU packet format***, for transport across a communications link.” (JA46 at 2:3–6 (emphases added).) Thus, the '040 Patent envisions different SDU formats received from a plurality of different users:

For each system these packets may be of a standard length or ***may vary in length as the needs of the users dictate***, but the format of the packets are generally ***unique to the protocol utilized***. Data packets utilizing a particular protocol and format may be referred to as service data units, or SDUs.

(JA46 at 1:29–34 (emphases added).) Because the '040 Patent requires multiple users, it follows that there must also be multiple connections.

This is further illustrated by the '040 Patent's discussion of user connections themselves. Figure 3 of the '040 Patent shows an exemplary node serving its multiple users through “a plurality of user connections 36”:

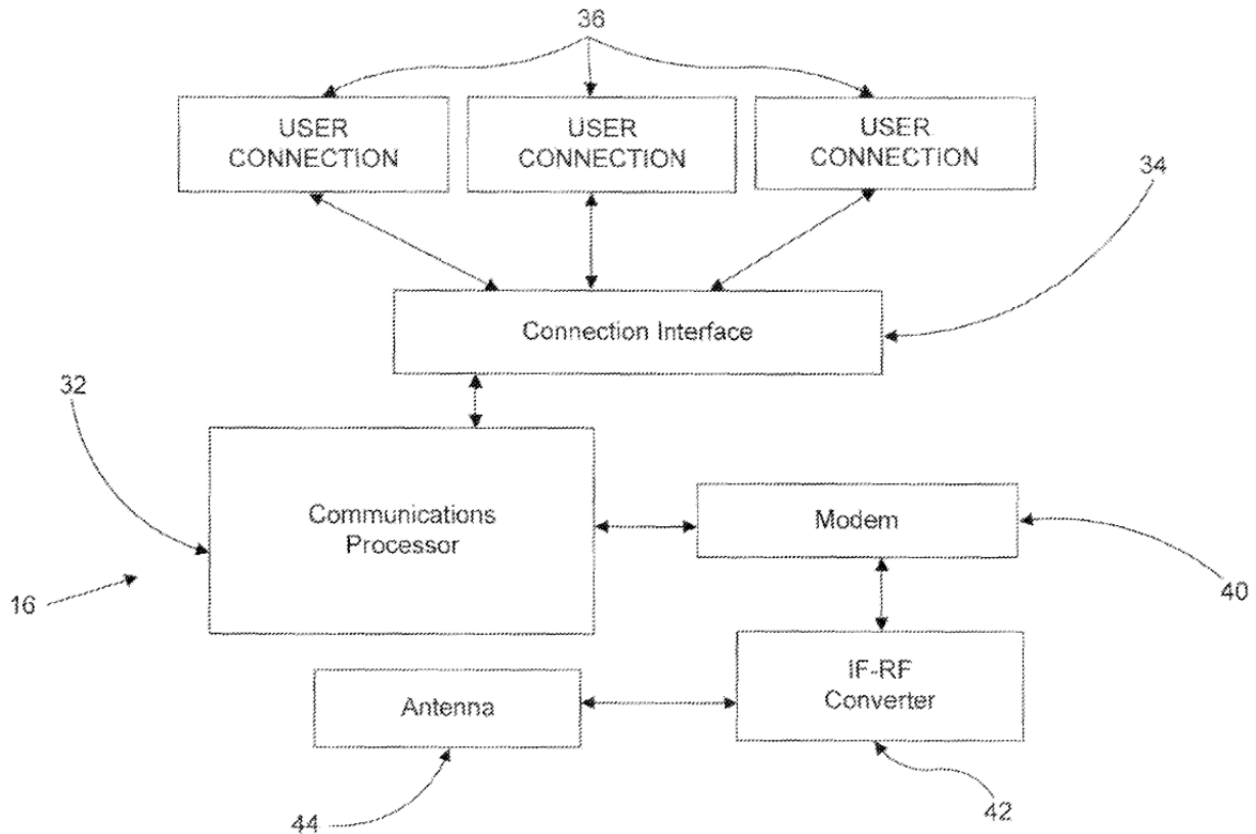


Figure 3

(JA34, JA48 at 6:16–20.) Referring to Figure 3, the specification states:

During uplink transmissions, information packages in the form of SDUs are *provided by the user connections 36* to the connection interface 34. The connection interface 34 is utilized by the communications processor 32 to control the transmission of SDUs to the node 16 and transfers the SDUs to the communications processor 32. The communications processor 32, among other things, converts the SDUs into the appropriate PDU format for the transmission link.

(JA48 at 6:44–51 (emphasis added).) Similarly, in the downlink direction,

“[i]nformation is received by the base station 12 from the data source, is prepared for and transmitted across a data link to a node 16, and is then directed to the *appropriate connection* for transmission *to the appropriate user.*” (JA47 at 4:47–

51 (emphases added); *see also* JA32.) The selection of an “appropriate” user connection necessarily requires more than one user connection.

Second, the asserted claims themselves support this conclusion by reciting “allocat[ion] of bandwidth . . . based on the *priority* of the connection,” necessarily requiring multiple connections to users. (JA55 at 19:37–38 (emphasis added); *see also* JA22, JA47 at 4:40–41 (“each node 16 *serving multiple connections for users*” (emphasis added)), JA55 at 19:37–38, 20:55–58, JA56 at 21:18–26.)

Indeed, claim 1 recites “allocat[ing] bandwidth for the specified connection, based on the *priority of the connection.*” (JA55 at 19:37–38 (emphasis added).) Despite the plain language of the claim, Wi-LAN argues that the allocation does not occur based on the priority of the connection in relation to other connections, but instead in relation to “control data.” (Br. at 32–33.) Not only is that argument inconsistent with the plain language of the claim, it is belied by the discussion of prioritization in the specification. The specification makes clear that allocation is based on the different *user* data service priorities:

The communications processor must allocate sufficient bandwidth to accommodate the bandwidth requirements imposed by *high priority constant bit rate (CBR) services* such as T1, E1 and similar constant bit rate services and their respective formats. In addition, the communications processor must allocate the remaining system bandwidth to *mid-priority services* and also to the *lower priority services* such as Internet Protocol (IP) data services and their respective formats.

(JA52 at 13:36–44 (emphases added); *see also* JA55 at 19:37–38, 20:55–58, JA56 at 21:18–26.) Absent from this discussion of priority is a reference to “control data,” which is simply the data required for registration and regulation of communication between the node and the base station. (*See* JA50 at 9:60–64.) Thus, the ’040 Patent prioritizes different data from users or services, rather than “control data” generated by the subscriber station or base station.

## 2. *Wi-LAN Mischaracterizes the District Court’s Conclusion*

Wi-LAN mischaracterizes the district court’s conclusion and bases the majority of its arguments on this faulty premise. According to Wi-LAN, the district court misconstrued the term “associated with a specified connection” to require that each SDU be associated with a *different* “specified connection.” (Br. at 24.) However, the district court made no such holding, and Apple does not dispute that one or more SDUs can be associated with a single specified connection. Instead, Apple argued during summary judgment that the asserted claims simply require multiple “specified connections” based on the “allocating” language, among other things. (JA145–46.) Agreeing with Apple, the district court concluded that “when that term [‘specified connection’] is read in context of the claims as a whole, it is clear the claims require more than one specified connection.” (JA10.) Accordingly, the district court’s conclusion is consistent

with the plain language of the claims, the prosecution history, and the preferred embodiments of the '040 Patent.

Wi-LAN argues that the district court's conclusion improperly narrows the plain language of claims 1 and 16 because the claims refer to "*a* specified connection" and "*the* specified connection." (Br. at 26–28.) However, in claim 1, "*the* specified connection" refers back to "*a* specified connection," which refers to one of multiple connections. (JA55 at 19:29–53 (emphasis added).) Claim 16 refers specifically to "*the* specified connection *in a current frame*," but does not eliminate the requirement for multiple connections. (JA56 at 21:21–22 (emphases added).)

Wi-LAN's reliance on *Thorner v. Sony Computer Entm't Am., LLC*, 669 F.3d 1362 (Fed. Cir. 2012) and *Rhine v. Casio, Inc.*, 183 F.3d 1342 (Fed. Cir. 1999) to argue disclaimer is also misplaced. Because the plain language of the claims is consistent with the requirement for multiple specified connections, disclaimer is irrelevant. In *Thorner*, this Court held that the term "attached" must be given its plain and ordinary meaning as there was no indication that the patentee disavowed the plain and ordinary meaning. *Thorner*, 669 F.3d at 1366–67. Here, the district court's conclusion that multiple "specified connections" are required for the overall claim is not at odds with the plain and ordinary meaning of "a specified connection" or "the specified connection in a current frame." In *Rhine*,

the district court construed the term “at least *one* light source” as requiring at least two light sources. *Rhine*, 183 F.3d at 1345. Requiring at least *two* light sources is plainly inconsistent with the language requiring “at least *one* light source.” By contrast, reference to “a specified connection” in one clause is not inconsistent with the overall claim requiring multiple specified connections. In fact, the patentee’s use of the phrase “*a* specified connection” comports with the notion that it is one of many “specified connections,” rather than the only one.

The doctrine of claim differentiation and the authority Wi-LAN cites in support are equally inapplicable. Wi-LAN argues that the requirement for multiple “specified connections” in claim 1 is inconsistent with the language of dependent claim 7. (Br. at 29.) However, claim 7, which refers to “*the* connection *in the header*,” again simply refers to one of multiple connections. (JA55 at 20:5–6 (emphases added).) As a result, claim 7 is not inconsistent with the district court’s conclusion that the claims require multiple “specified connections.” Wi-LAN’s reliance on *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440 (Fed. Cir. 1997), which held that an independent claim term could not be construed in a manner inconsistent with corresponding dependent claims, is therefore inapplicable.

The district court’s conclusion is also consistent with the prosecution history of the parent application of the ’040 Patent, contrary to Wi-LAN’s suggestion.



(*See* Br. at 29.) Again, the prosecution history refers to “*the* specified connection . . . whose associated SDUs are being packed and fragmented into the PDU.” (Br. at 29, JA1917.) As discussed above, one or more SDUs can be associated with the same specified connection. Therefore, the prosecution history’s discussion of multiple SDUs associated with a single specified connection does not undermine the district court’s finding that the asserted claims as a whole require multiple “specified connections.”

Lastly, Wi-LAN argues that a preferred embodiment of the ’040 Patent excludes the district court’s conclusion because the preferred embodiment describes “packing *multiple SDUs from the same connection*.” (Br. at 30 (emphasis in original).) Again, the language of the ’040 Patent is consistent with the district court’s ruling, and does not preclude the finding that the claim requires multiple “specified connections.”

### 3. *The ’640 Patent Supports the District Court’s Conclusion that the Claims Require Multiple “Specified Connections”*

Throughout the underlying proceedings, Wi-LAN consistently argued that “the ‘[specified] connections’ in the ’040 Patent are akin to the ‘[UL] connections’ in the ’640 Patent. . . .” (JA99; *see also* JA2932.) In line with Wi-LAN’s position, the district court construed both terms as the connections between the end user and the intermediary subscriber unit or node. (JA24, JA27.) Based on the evidence presented during summary judgment proceedings, the district court concluded that

the asserted claims of both of the Patents-in-Suit require multiple “connections.” (JA10, JA13–14.)

Wi-LAN now argues, for the first, time, that the terms “UL connections” and “specified connection” should be construed differently. On the one hand, Wi-LAN appeals the construction of “UL connections” in the ’640 Patent but does not appeal the conclusion that multiple “UL connections” are required. And, on the other hand, Wi-LAN appeals the conclusion that multiple “specified connections” are required in the ’040 Patent, but does not appeal the construction of “specified connection.”

The claims of the Patents-in-Suit, however, do not support this distinction. As Wi-LAN acknowledged during claim construction proceedings (JA99), both the ’640 Patent and the ’040 Patent claim a device that allocates bandwidth among its connections based on priority. (*Compare* JA84 at 23:31–33 (“allocates the UL bandwidth grant to the one or more UL connections based on QoS priority”) *with* JA55 at 19:37–38 (“allocate bandwidth for the specified connection, based on the priority of the connection”).) Because the claimed “connections” in the ’040 Patent perform the same function as those in the ’640 Patent, the district court correctly concluded that the ’040 Patent requires multiple connections, just like the ’640 Patent.

4. *Apple's Products Do Not Infringe the '040 Patent*

Based on the district court's conclusion that the asserted claims of the '040 Patent require multiple "specified connections" and the undisputed fact that the Accused Products do not contain multiple "specified connections," the district court found that the Accused Products do not infringe the '040 Patent. Wi-LAN does not appeal the district court's finding that the Accused Products do not contain multiple "specified connections." Thus, because the asserted claims of the '040 Patent require multiple "specified connections," the Federal Circuit should affirm the district court's order on summary judgment of non-infringement of the '040 Patent.

**VIII. CONCLUSION**

For the foregoing reasons, this Court should affirm the district court's grant of summary judgment of non-infringement of all asserted claims of the Patents-in-Suit.

Date: May 27, 2015

Respectfully submitted,

By: /s/ Mark C. Scarsi  
Mark C. Scarsi  
MILBANK TWEED HADLEY & MCCLOY LLP  
601 South Figueroa Street  
30th Floor  
Los Angeles, CA 90017  
mscarsi@milbank.com

*Attorney for Defendant-Appellee Apple Inc.*

**CERTIFICATE OF FILING AND SERVICE**

I hereby certify that on this 27th day of May, 2015, I caused the foregoing Answering Brief of Defendant-Appellee Apple Inc. to be electronically filed with the Clerk of the Court using CM/ECF, which will automatically send notification of such filing to counsel of record.

Date: May 27, 2015

By: /s/ Mark C. Scarsi  
Mark C. Scarsi  
MILBANK TWEED HADLEY & MCCLOY LLP  
601 South Figueroa Street  
30th Floor  
Los Angeles, CA 90017  
mscarsi@milbank.com

*Attorney for Defendant-Appellee Apple Inc.*

**CERTIFICATE OF COMPLIANCE  
UNDER FEDERAL RULE OF APPELLATE PROCEDURE 32(A)(7) AND  
FEDERAL CIRCUIT RULE 32**

Counsel for Defendant-Appellee Apple Inc. certifies that the brief contained herein has a proportionally spaced 14-point typeface, and contains 11,817 words, based on the “Word Count” feature of Word 2010, including footnotes. Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b), this word count does not include the words contained in the Certificate of Interest, Table of Contents, Table of Authorities, and Statement of Related Cases.

Date: May 27, 2015

By: /s/ Mark C. Scarsi  
Mark C. Scarsi  
MILBANK TWEED HADLEY & McCLOY LLP  
601 South Figueroa Street  
30th Floor  
Los Angeles, CA 90017  
mscarsi@milbank.com

*Attorney for Defendant-Appellee Apple Inc.*